FEU 03 – National Integrated Ballistics Information Network (NIBIN) Operational Procedure

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1. Scope

1.1. This procedure provides IBIS Users with standards to perform IBIS acquisition and correlation examinations of questioned fired cartridge cases and test fires of firearms selected for IBIS acquisitions.

1.2. Further, this procedure forms an integral part of the Firearms Examination Unit's (FEU) Operations and provides information on how evidence is prepared for NIBIN acquisitions and documented.

1.3. The FEU Unit Manager is the NIBIN Program Administrator. In the event of a vacancy of the FEU Unit Manager, the FEU Supervisor or designee Senior Firearms Examiner will perform the duties of NIBIN Program Administrator until the FEU Unit Manager is replaced and qualified. The FEU will ensure that a qualified designee can be identified.

1.4. The requirements for reporting NIBIN results can be found in the FEU 06 – The Writing and Distribution of Reports.

2. Background

2.1. IBIS® BRASSTRAX-3D™ is a 3D/2D imaging system capable of automated imaging, comparison, enhanced visualization and analysis of fired cartridge cases. This allows the FEU to potentially link related shooting incidents and/or firearms to one another and store the information on a central database.

2.2. The IBIS BRASSTRAX-3D System is managed by the Bureau of Alcohol Tobacco, Firearms, and Explosives (ATF) and operated through the NIBIN. The

NIBIN program has established a partnership with the Department of Forensic Sciences (DFS), who currently operates an IBIS BRASSTRAX SYSTEM.

3. Safety

3.1. Members should use universal precautions with evidentiary materials.

4. Materials Required

4.1. IBIS User Training: BRASSTRAX Standard Image Acquisition Protocols.

5. Standards and Controls

5.1. Prerequisite:

5.1.1 IBIS Users must complete the Basic NIBIN User Training Course delivered by NIBIN National Correlation Training Center (NNCTC) in order to operate the BRASSTRAX System.

5.1.2 Technicians and examiners will also complete the NIBIN Screening/Preparation module of the FEU Training Manual.

5.2. All NNCTC and ATF requests to correct acquisition will be documented and the placement of the correlation result recorded prior to image modifications.

6. Calibration

6.1. An automatic calibration is performed of the NIBIN System after every 50 acquisitions. Records of these calibrations can be found in the IBIS system under Tests and Adjustments.

7. Procedures

7.1. NIBIN Service Requests and Definitions

7.1.1. NIBIN Entry: Fired cartridge cases and test fires from pistols, rifles and shotguns that are submitted by police agencies and stakeholders will be evaluated, prepared and entered into the NIBIN System. Revolver cartridge cases are not entered into the NIBIN System.

7.1.2. NIBIN Comparisons: Possible hits/leads are generated by NIBIN National Correlation and Training Center (NNCTC). The Department of Forensic Sciences can conduct correlation results in the event of a priority.

7.1.3. NIBIN Verifications: Occurs when a qualified examiner retrieves the physical items of evidence and conducts a microscopic examination to evaluate a lead generated through NIBIN.

7.2. NIBIN Screening/Preparation

7.2.1. Qualified technicians and/or examiners will screen/evaluate and prepare a representative sample per case submission for NIBIN Acquisitions. Qualified

technicians and/or examiners are those who have completed the appropriate module in the FEU Training Manual, and been deemed competent to perform screening; this does not constitute a microscopic examination as performed by qualified examiners.

7.2.2. A representative sample is selected by screening each cartridge case and choosing the best candidate by class characteristics, namely: firing pin shapes, breechface marks, ejection marks, extraction marks and relevant orientations.

7.2.3. If the technician/examiner cannot distinguish between the aforementioned class characteristics only one (1) cartridge case must be entered into the NIBIN System.

7.2.4. If it is determined that a test fire or other representative sample of the firearm is already in the System for that specific incident or case number, no additional cartridge cases from the crime scene(s) will be entered. Entering additional cartridge cases from the same firearm will cause duplications on the correlation list.

7.2.5. If an evidence sample was entered prior to receiving a firearm for test fire for the same incident or case number, and it is determined that the evidence sample is linked to the firearm, the test fired cartridge case will not be entered. The firearm information must, however, be added to the NIBIN sample and the category of evidence must be changed to Crime Test Fire: Terminated.

7.3. NIBIN Entries/Acquisitions

7.3.1. The Laboratory Information Management System (LIMS) will be the main database to document NIBIN Acquisitions through the NIBIN Prep and NIBIN Entry service requests.

7.3.2. The technician/examiner acquiring the images will review the cartridge case data entered into LIMS to ensure the information is consistent with the item(s) being entered into NIBIN.

7.3.3. Follow the BRASSTRAX Standard Image acquisition protocols. All three Regions of Interest (ROI) will be acquired, if present on the fired cartridge case(s). The ROI's are listed as follows:

7.3.3.1. Breechface

7.3.3.2. Firing pin

7.3.3.3. Ejector

7.3.4 The technician/examiner will print the "Case Information" page from NIBIN to show that the representative cartridge case(s) have been entered for a particular case. This page is uploaded with the case jacket into the LIMS Imaging Module for Part I offenses and any other case for which a Firearms Analysis or Serial number Restoration reports will be issued.

7.3.5 The analyst completing the NIBIN acquisition for Test Fires will ensure that the firearm is related to the NIBIN Entry request in LIMS prior to Draft Complete.

7.3.6 If corrections to sample acquisitions are requested by the NNCTC or ATF, they will be reviewed by the FEU Unit Manager or designee to determine what, if any, changes should be made.

7.3.7 Any changes made will be reviewed by the FEU Unit Manager or designee prior to resubmission of the image(s).

7.3.8 If repeated corrections to acquisition images are determined necessary for a particular user, the FEU Unit Manager may mandate re-training or take other steps to address the issue.

7.4. Correlation Examinations

7.4.1. NIBIN National Correlation and Training Center (NNCTC) conducts correlation examinations and provides NIBIN possible hits/leads within 48 hours. The Department of Forensic Sciences (DFS) can conduct correlation results in the event of a priority.

7.4.2 NIBIN Users are guided by the NIBIN/ATF protocol when performing correlations. NIBIN users performing correlations must print the image sheet from NIBIN when he/she encounters a NIBIN Lead.

7.5. Microscopic Examination

7.5.1. Microscopic examinations may be requested to confirm a NIBIN Lead; the requestor must submit the Forensic Science Laboratory (FSL) Request for Testing Form through the Forensic Intelligence Unit (FIU).

7.5.2. Once the request is received by FEU, the evidence coordinator or designee will ensure all relevant evidence items are available to the examiner for the comparison/verification.

7.5.3. The analysts will be required to justify their findings using the FEU Standards of Interpretation and Criteria for Microscopic results as described in Section 7.7 of FEU02. The analyst is required to evaluate associated evidence to support and qualify the microscopic results for a NIBIN verification in the absence of a firearm or additional leads.

7.5.4. Sections 7.1 through 7.4 of FEU02 – The Examination of Ammunition and Ammunition Components will be followed to complete all the necessary documentation of the evidence that generated the NIBIN lead.

7.5.5. The items that generated the NIBIN Lead will be compared to one another. Interchangeable test fires that are used will be clearly documented in the technical notes.

7.5.6. Cartridge case items associated with the items in the NIBIN lead will be made available to the reporting examiner to evaluate and assist with the NIBIN lead microscopic findings.

7.5.7. All items examined and evaluated by the reporting examiner will also be provided to the verifier for an independent verification.

7.5.8 Any associated items used will be listed on the verification worksheet by both the reporting examiner and the verifier.

7.5.9 The verifier may request additional associated items, if necessary, which must also be included in the verifier's notes on the verification worksheet.

7.6. Conclusions and Verifications

7.6.1 Sections 7.7 and 7.8 of FEU02 – The Examination of Ammunition and Ammunition Components will be followed to document the examiner's and verifier's conclusions.

7.7. Cross Border NIBIN Verifications

7.7.1. Cross border NIBIN verifications are conducted for NIBIN leads that are generated against an outside agency. The NIBIN Site that generates the NIBIN lead will travel to the other agency, unless other arrangements are made between agencies.

7.7.2. The DFS examiner will ensure that the relevant evidence is available for verification at DFS and the outside agency.

7.7.3. The items and NIBIN Lead datasheet are required to complete the verification. NIBIN verifications are conducted in person and in the presence of the outside agency's examiner.

7.7.4. Once the microscopic verification is completed each examiner will document the results, date and initial the NIBIN Lead data sheet. The photomicrographs will be printed, initialed and dated. A complete copy will be returned with the DFS examiner.

7.7.5. The custody of evidence will be maintained at all times.

7.7.6. On return to DFS, the DFS examiner will add the verification information (examiner and verification details) in LIMS (Extended data field).

7.8. LIMS Requirements

7.8.1. The LIMS Guide to NIBIN Operations forms an integral part to understanding the required fields and steps that must be completed.

7.8.2. NIBIN Prep (NIBIN Screening/Preparation) – Complete the following fields in LIMS:

7.8.2.1 Select "Cartridge Case" radio button
7.8.2.2 Make
7.8.2.3 Caliber
7.8.2.4 Composition (of cartridge case)
7.8.2.5 Headstamp
7.8.2.6 Composition (of primer)
7.8.2.7 Firing Pin

7.8.2.8 Breechface
7.8.2.9 Initials and Date in the “Edit Findings” of the request

7.8.3 NIBIN Entry (NIBIN Entries/Acquisitions) – Draft complete the NIBIN Entry request with Initials and Date in the “Edit Findings” of the request at the time of entry.

7.8.4 NIBIN Comparison (Correlation examinations) – Fill out the following fields in the NIBIN result data extension:
7.8.4.1 Correlated by ATF
7.8.4.2 NIBIN lead
7.8.4.3 Number of leads
7.8.4.4 Related cases (DFS# and item #)
7.8.4.5 Initials and Date in the “Edit Findings” of the request

7.8.5 NIBIN Verifications (Microscopic examinations) – Complete the following fields/worksheets in LIMS: Add the result/report wording under the lead case item
7.8.5.1 NIBIN Worksheet: Corresponding case(s) information (including caliber and item description) for cross-border cases only; Number Confirmed Positive (Identifications) and/or Number Confirmed Negative (Eliminations AND Inconclusives) for all requests.
7.8.5.2 Add related laboratory cases on the Case Info tab for links between DFS cases.
7.8.5.3 Verification Worksheet
7.8.5.4 Complete report using FEU 06 –The Writing and Distribution of Reports.

8. Sampling

8.1. Not applicable

9. Calculations

9.1. Not applicable

10. Uncertainty of Measurement

10.1. Not applicable

11. Limitations

11.1. The IBIS BRASSTRAX™ system in operation at the Department of Forensic Sciences does not have the equipment and capability to conduct bullet acquisitions. Revolver cartridge cases are not entered into the NIBIN System.

11.2. Reports are written with the understanding that firearms identification is an empirical science that relies on objective observations and a subjective interpretation of microscopic and macroscopic marks of value. Since it is not possible to collect and examine samples of all firearms, it is not possible to make an identification with absolute certainty. However all scientific research and testing to date and the continuous inability to disprove the principles of toolmark analysis have demonstrated that firearms produce unique, identifiable characteristics which allow examiners to reliably make identifications.

12. Documentation

12.1. NIBIN Verification worksheet

13. References

13.1. IBIS Brasstrax 3D V2.3 Training Guide 2011

13.2. IBIS Matchpoint + V2.3 Training Guide 2011

13.3. BRASSTRAX Standard Image Acquisition Protocol (2-12-14 SG/JM)

13.4. IBIS TRAX HD3D BRASSTRAX New Guidelines for Glock type acquisitions

13.5. FEU-LIMS-03 Guide to NIBIN Operations

13.6. Departmental Operations Manuals (Current Versions)

13.7. Forensic Science Laboratory Quality Assurance Manual (Current Version)

13.8. FSL Laboratory Operations Manuals (Current Versions)